CLAIMS

1. A method for transmitting data, comprising:

arranging a predetermined quantity of the data together with one or more overhead bytes in an overhead frame;

dividing the overhead frame into equal segments, each of the segments comprising a number of bits that is not an integer multiple of eight; and

encoding each of the segments as a symbol for transmission over a communication channel.

2. A method according to claim 1, wherein dividing the frame into equal segments comprises dividing the frame into a number Q of segments, and wherein the one or more overhead bytes comprise a number of overhead bytes that is not an integer multiple of Q.

3. A method according to claim 2, wherein the number of overhead bytes is less than Q.

4. A method according to claim 1, wherein the overhead bytes comprise one or more framing bytes.

5. A method according to claim 4, wherein the one or more framing bytes comprise a number S of framing bytes in the overhead frame, and wherein dividing the frame into equal segments comprises dividing the frame into a number Q of segments, wherein S is not an integer multiple of Q.

6. A method according to claim 5, wherein S is less than Q.

7. A method according to claim 1, wherein the overhead bytes comprise one or more error correction bytes.

8. A method according to claim 7, wherein the one or more error correction bytes comprise a number P of check bytes in the overhead frame, and wherein dividing the frame into equal segments comprises dividing the frame into a number Q of segments, wherein P is not an integer multiple of Q.

9. A method according to claim 8, wherein P is less than Q.

10. A method according to claim 7, wherein arranging the data in the overhead frame comprises generating a Reed-Solomon codeword, and wherein the error correction bytes comprise parity bytes of the Reed-Solomon codeword.

11. A method according to claim 1, wherein encoding each of the segments as a symbol comprises generating discrete multi-tone (DMT) symbols.

12. A method according to claim 11, wherein generating the DMT symbols comprises generating the symbols for transmission over a digital subscriber line (DSL) connection.

13. A method according to claim 1, wherein dividing the overhead frame into segments comprises determining the number of bits to be comprised in each segment responsive to a characteristic of the communication channel.

14. A method according to claim 1, wherein encoding each of the segments comprises generating symbols for transmission over a digital subscriber line (DSL) connection at a standard DSL symbol rate, and wherein arranging the data in the overhead frame comprises determining the quantity of the data and adding the overhead bytes thereto so that the data are transmitted

over the communication channel at a transmission bit rate that is not a multiple of eight times the standard DSL symbol rate.

15. A method according to claim 14, wherein the standard DSL symbol rate comprises an Asymmetric DSL (ADSL) rate of 4000 symbols/sec.

16. A method according to claim 14, wherein generating the symbols comprises assembling the data in the symbols substantially without bit-stuffing.

17. A method according to claim 14, wherein encoding each of the segments comprises synthesizing a symbol clock at which to transmit the symbols over the DSL connection, based on a reference clock at the transmission rate provided at a central communication office.

18. A method for transmitting data, comprising:

arranging a predetermined quantity of the data together with a selected number of overhead bytes in an overhead frame;

dividing the overhead frame into a number of equal segments, such that the selected number of the overhead bytes is not an integer multiple of the number of segments; and

encoding each of the segments as a symbol for transmission over a communication channel.

19. A method according to claim 18, wherein the selected number of the overhead bytes is less than the number of the segments.

20. A method according to claim 18, wherein the overhead bytes comprise a number S of framing bytes, wherein S is not an integer multiple of the number of the segments.

21. A method according to claim 20, wherein S is less than the number of the segments.

22. A method according to claim 18, wherein the overhead bytes comprise a number P of error correction bytes, wherein P is not an integer multiple of the number of the segments.

23. A method according to claim 22, wherein P is less than the number of the segments.

24. A method according to claim 22, wherein arranging the data in the overhead frame comprises generating a Reed-Solomon codeword, and wherein the error correction bytes comprise parity bytes of the Reed-Solomon codeword.

25. A method according to claim 18, wherein encoding each of the segments as a symbol comprises generating discrete multi-tone (DMT) symbols.

26. A method according to claim 25, wherein generating the DMT symbols comprises generating the symbols for transmission over a digital subscriber line (DSL) connection.

27. A data transmitter, comprising:

a frame processor, adapted to arrange a predetermined quantity of the data together with one or more overhead bytes in an overhead frame; and

an encoder, adapted to divide the overhead frame into equal segments, each of the segments comprising a number of bits that is not necessarily an integer

multiple of eight, and to encode each of the segments as a symbol for transmission over a communication channel.

28. A transmitter according to claim 27, wherein the equal segments comprise a number Q of segments, and wherein the one or more overhead bytes comprise a number of overhead bytes that is not an integer multiple of Q.

29. A transmitter according to claim 28, wherein the number of overhead bytes is less than Q.

30. A transmitter according to claim 27, wherein the frame processor comprises a framer, and wherein the overhead bytes comprise one or more framing bytes introduced by the framer.

31. A transmitter according to claim 30, wherein the equal segments comprise a number Q of segments, and wherein the one or more framing bytes comprise a number S of framing bytes that is not an integer multiple of Q.

32. A transmitter according to claim 31, wherein S is less than Q.

33. A transmitter according to claim 27, wherein the frame processor comprises an error correction encoder, and wherein the overhead bytes comprise one or more error correction bytes generated by the encoder.

34. A transmitter according to claim 33, wherein the equal segments comprise a number Q of segments, and wherein the one or more error correction bytes comprise a number P of check bytes that is not an integer multiple of Q.

35. A transmitter according to claim 34, wherein P is less than Q.

36. A transmitter according to claim 33, wherein the error correction encoder comprises a Reed-Solomon encoder, and wherein the error correction bytes comprise parity bytes of a Reed-Solomon codeword.

37. A transmitter according to claim 27, wherein the symbols comprise discrete multi-tone (DMT) symbols.

38. A transmitter according to claim 37, wherein the transmitter is adapted to transmit the DMT symbols over a digital subscriber line (DSL) connection.

39. A transmitter according to claim 27, wherein the number of bits to be comprised in each segment is determined responsive to a characteristic of the communication channel.

40. A transmitter according to claim 27, which is coupled to transmit the symbols over a digital subscriber line (DSL) connection at a standard DSL symbol rate, wherein the quantity of the data and of the overhead bytes added thereto is determined so that the data are transmitted over the communication channel at a transmission bit rate that is not a multiple of eight times the standard DSL symbol rate.

41. A transmitter according to claim 40, wherein the standard DSL symbol rate comprises an Asymmetric DSL (ADSL) rate of 4000 symbols/sec.

42. A transmitter according to claim 40, wherein the encoder is adapted to assemble the data in the symbols substantially without bit-stuffing.

43. A transmitter according to claim 42, wherein a symbol clock at which to transmit the symbols over the DSL connection is synthesized based on a reference clock

at the transmission rate provided at a central communication office.

44. A data transmitter, comprising:

a frame processor, adapted to arrange a predetermined quantity of the data together with a selected number of overhead bytes in an overhead frame; and

an encoder, adapted to divide the overhead frame into a number of equal segments, such that the selected number of the overhead bytes is not an integer multiple of the number of segments, and to encode each of the segments as a symbol for transmission over a communication channel.

45. A transmitter according to claim 44, wherein the selected number of the overhead bytes is less than the number of the segments.

46. A transmitter according to claim 44, wherein the overhead bytes comprise a number S of framing bytes, wherein S is not an integer multiple of the number of the segments.

47. A transmitter according to claim 46, wherein S is less than the number of the segments.

48. A transmitter according to claim 44, wherein the overhead bytes comprise a number P of error correction bytes, wherein P is not an integer multiple of the number of the segments.

49. A transmitter according to claim 48, wherein P is less than the number of the segments.

50. A transmitter according to claim 48, wherein the frame processor comprises a Reed-Solomon encoder, such

that the overhead frame comprises a Reed-Solomon codeword, and wherein the error correction bytes comprise parity bytes of the Reed-Solomon codeword.

51. A transmitter according to claim 44, wherein the symbols comprise discrete multi-tone (DMT) symbols.

52. A transmitter according to claim 51, wherein the transmitter is adapted to transmit the DMT symbols over a digital subscriber line (DSL) connection.